COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

Permit No. **VA0028363**
Effective Date: **February 11, 2014**
Expiration Date: **February 10, 2014**

AUTHORIZATION TO DISCHARGE UNDER THE
VIRGINIA POLLUTANT DISCHARGE ELIMINATION SYSTEM
AND THE VIRGINIA STATE WATER CONTROL LAW

In compliance with the provisions of the Clean Water Act as amended and pursuant to the State Water Control Law and regulations adopted pursuant thereto, the following owner is authorized to discharge in accordance with the information submitted with the permit application, and with this permit cover page, Part I – Effluent Limitations and Monitoring Requirements, and Part II – Conditions Applicable To All VPDES Permits, as set forth herein.

Owner Name:	United States Marine Corps
Facility Name:	Quantico Mainside STP
County:	Prince William
Facility Location:	658 Epperson Avenue, Quantico, VA 22134

The owner is authorized to discharge to the following receiving stream:

Stream Name:	Quantico Bight
River Basin:	Potomac
River Subbasin:	Potomac River
Section:	5
Class:	II
Special Standards:	b

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Thomas A. Faha
Director, Northern Regional Office
Department of Environmental Quality

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Date

A. Effluent Limitations and Monitoring Requirements

1. Outfall 001 – 2.2 MGD Facility

a. There shall be no discharge of floating solids or visible foam in other than trace amounts.

b. This facility has Total Nitrogen and Total Phosphorus calendar year load limits associated with this outfall included in the current Registration List under registration number VAN010043, enforceable under the General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Dischargers and Nutrient Trading in the Chesapeake Watershed in Virginia.

c. During the period beginning with the permit's effective date and lasting until the expiration date the permittee is authorized to discharge from Outfall Number 001. Such discharges shall be limited and monitored by the permittee as specified below.

Parameter	Discharge Limitations				Monitoring Requirements	
	Monthly Average [1]	Weekly Average [1]	Minimum	Maximum [1]	Frequency	Sample Type
Flow [2] (MGD)	NL	NA	NA	NL	Continuous	TIRE
pH	NA	NA	6.5 S.U.	8.5 S.U.	1/D	Grab
$CBOD_5$	5 mg/L 42 kg/day	8 mg/L 67 kg/day	NA	NA	1/D	24HC
Total Suspended Solids (TSS)	6.0 mg/L 50 kg/day	9.0 mg/L 75 kg/day	NA	NA	1/D	24HC
Dissolved Oxygen (D.O.)	NA	NA	6.0 mg/L	NA	1/D	Grab
Total Kjeldahl Nitrogen (TKN)	NL	NL	NA	NA	1/W	24H-C
Ammonia, as N (Apr-Oct)	1.0 mg/L 8.3 kg/d	1.5 mg/L 12 kg/d	NA	NA	1/D	24H-C
Enterococci (Geometric Mean) [3]	33 n/100 mls	NA	NA	NA	1/D	Grab
Total Residual Chlorine	0.028 mg/L	0.035 mg/L	NA	NA	1/D	Grab
Nitrate+Nitrite, as N	NL mg/L	NA	NA	NA	1/W	24H-C
Total Nitrogen [4]	NL mg/L	NA	NA	NA	1/W	Calculated
Total Nitrogen – Year to Date [5]	NL mg/L	NAL	NA	NA	1/M	Calculated
Total Nitrogen - Calendar Year [5]	3.0 mg/L	NA	NA	NA	1/Y	Calculated
Total Phosphorus	0.18 mg/L 3.3 lb/d	0.27 mg/L 5.0 lb/d	NA	NA	1/W	24H-C
Chronic Toxicity *C. dubia* (TU_c) [6]	NA	NA	NA	NL	1/Y	24H-C
Chronic Toxicity *P. promelas* (TU_c) [6]	NA	NA	NA	NL	1/Y	24H-C

[1] See Part I.B.

[2] The design flow is 2.2MGD.

[3] Samples shall be collected between 10:00 a.m. and 4:00 p.m.

[4] Total Nitrogen is the sum of Total Kjeldahl Nitrogen and NO_2+NO_3 Nitrogen and shall be calculated from the results of those tests.

[5] See Part I.B.3. for nutrient reporting calculations.

[6] See Part I.C. for toxicity monitoring requirements.

MGD = Million gallons per day.
NL = No limit; monitor and report.
NA = Not applicable.
TIRE = Totalizing, indicating and recording equipment.
S.U. = Standard units.

1/D = Once every day.
1/W = Once every week.
1/M = Once every month.
1/Y = Once every year.

24H-C = A flow proportional composite sample collected manually or automatically, and discretely or continuously, for the entire discharge of the monitored 24-hour period. Where discrete sampling is employed, the permittee shall collect a minimum of twenty-four (24) aliquots for compositing. Discrete sampling may be flow proportioned either by varying the time interval between each aliquot or the volume of each aliquot. Time composite samples consisting of a minimum of twenty-four (24) grab samples obtained at hourly or smaller intervals may be collected where the permittee demonstrates that the discharge flow rate (gallons per minute) does not vary by 10% or more during the monitored discharge.

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

B. Additional Monitoring Requirements, Quantification Levels and Compliance Reporting

1. Quantification Levels

   a. The quantification levels (QL) shall be less than or equal to the following concentrations:

Characteristic	Quantification Level
Total Suspended Solids (TSS)	1.0 mg/L
$cBOD_5$	2 mg/L
Ammonia	0.20 mg/L
Total Residual Chlorine (TRC)	0.10 mg/L

   b. The QL is defined as the lowest concentration used to calibrate a measurement system in accordance with the procedures published for the method. The permittee shall use any method in accordance with Part II A of this permit.

   c. It is the responsibility of the permittee to ensure that proper quality assurance/quality control (QA/QC) protocols are followed during the sampling and analytical procedures. QA/QC information shall be documented to confirm that appropriate analytical procedures have been used and the required QLs have been attained.

2. Compliance Reporting for parameters in Part I.A.

   a. Monthly Average – Compliance with the monthly average limitations and/or reporting requirements for the parameters listed in Part I.B.1.a of this permit condition shall be determined as follows: All concentration data below the QL used for the analysis (QL must be less than or equal to the QL listed in Part I.B.1.a above) shall be treated as zero. All concentration data equal to or above the QL used for the analysis (QL must be less than or equal to the QL listed in Part I.B.1.a above) shall be treated as it is reported. An arithmetic average shall be calculated using all reported data for the month, including the defined zeros. This arithmetic average shall be reported on the Discharge Monitoring Report (DMR) as calculated. If all data are below the QL used for the analysis (QL must be less than or equal to the QL listed in Part I.B.1.a above), then the average shall be reported as "< QL". If reporting for quantity is required on the DMR and the reported monthly average concentration is < QL, then report "< QL" for the quantity. Otherwise, use the reported concentration data (including the defined zeros) and flow data for each sample day to determine the daily quantity and report the monthly average of the calculated daily quantities.

   b. Maximum Weekly Average – Compliance with the weekly average limitations and/or reporting requirements for the parameters listed in Part I.B.1.a of this permit condition shall be determined as follows: All concentration data below the QL used for the analysis (QL must be less than or equal to the QL listed in Part I.B.1.a above) shall be treated as zero. All concentration data equal to or above the QL used for the analysis (QL must be less than or equal to the QL listed in Part I.B.1.a above) shall be treated as reported. An arithmetic average shall be calculated using all reported data, including the defined zeros, collected within each complete calendar week and entirely contained within the reporting month. The maximum value of the weekly averages thus determined shall be reported on the DMR. If all data are below the QL used for the analysis (QL must be less than or equal to the QL listed in Part I.B.1.a above), then the weekly average shall be reported as "< QL". If reporting for quantity is required on the DMR and the reported weekly average concentration is < QL, then report "< QL" for the quantity. Otherwise, use the reported concentration data (including the defined zeros) and flow data for each sample day to determine the daily quantity and report the maximum weekly average of the calculated daily quantities.

c. Single Datum – Any single datum required shall be reported as "< QL" if it is less than the QL used in the analysis (QL must be less than or equal to the QL listed in Part I.B.1.a above). Otherwise, the numerical value shall be reported.

d. Significant Digits – The permittee shall report at least the same number of significant digits as the permit limit for a given parameter. Regardless of the rounding convention used (i.e., 5 always rounding up or to the nearest even number) by the permittee, the permittee shall use the convention consistently, and shall ensure that consulting laboratories employed by the permittee use the same convention.

3. Nutrient Reporting Calculations for Part I. A.

a. For each calendar month, the DMR shall show the calendar year-to-date average concentration (mg/L) calculated in accordance with the following formulae:

MC_{avg}–YTD = ($\sum_{(Jan\text{-}current\ month)} MC_{avg}$) ÷ (# of months)

where:
MC_{avg}–YTD = calendar year-to-date average concentration (mg/L)
MC_{avg} = monthly average concentration (mg/L) as reported on DMR

b. The total nitrogen average concentrations (mg/L) for each calendar year (AC) shall be shown on the December DMR due January 10th of the following year. These values shall be calculated in accordance with the following formulae:

AC_{avg} = ($\sum_{(Jan\text{-}Dec)} MC_{avg}$) ÷ 12

where:
AC_{avg} = calendar year average concentration (mg/L)
MC_{avg} = monthly average concentration (mg/L) as reported on DMR

c. For Total Phosphorus, all daily concentration data below the quantification level (QL) for the analytical method used should be treated as half the QL. All daily concentration data equal to or above the QL for the analytical method used shall be treated as it is reported.

d. For Total Nitrogen (TN), if none of the daily concentration data for the respective species (i.e., Nitrates/Nitrites, TKN) are equal to or above the QL for the respective analytical methods used, the daily TN concentration value reported shall equal one half of the largest QL used for the respective species. If one of the data is equal to or above the QL, the daily TN concentration value shall be treated as that data point is reported. If more than one of the data is above the QL, the daily TN concentration value shall equal the sum of the data points as reported.

C. Whole Effluent Toxicity Program Requirements

1. Biological Monitoring

a. In accordance with the schedule in Part I.C.2. below, the permittee shall conduct annual chronic toxicity tests during this permit term. The permittee shall collect 24-hour flow-proportioned composite samples of final effluent at Outfall 001.

The chronic tests to use are:

Chronic 3-Brood Static Renewal Survival and Reproduction Test using *Ceriodaphnia dubia*

Chronic 7-Day Static Renewal Survival and Growth Test using *Pimephales promelas*

These chronic tests shall be conducted in such a manner and at sufficient dilutions (minimum of five dilutions) to determine the ″No Observed Effect Concentration″ (NOEC) for survival and reproduction or growth. Results which cannot be quantified (i.e., a ″less than″ NOEC value) are not acceptable and a retest shall be performed. The NOEC, as determined by hypothesis testing, shall be converted to TU_c (Chronic Toxic Units) for Discharge Monitoring Report (DMR) reporting where $TU_c = 100/NOEC$. Report the LC_{50} at 48 hours and the IC_{25} with the NOEC′s in the test report.

b. The permittee may provide additional samples to address data variability. These data shall be reported. Test procedures and reporting shall be in accordance with the WET testing methods cited in 40 CFR 136.3.

c. The test dilutions shall be able to determine compliance with the following endpoints:

Chronic NOEC $\geq$ 12%; equivalent to a $TU_c \leq 8.33$

d. The test data will be evaluated statistically for reasonable potential at the conclusion of the test period. The data may be evaluated sooner if requested by the permittee or if toxicity has been noted. Should evaluation of the data indicate that a limit is warranted, a WET limit and compliance schedule will be required.

e. The permit may be modified or revoked and reissued to include pollutant specific limits in lieu of a WET limit should it be demonstrated that toxicity is due to specific parameters. The pollutant specific limitation shall control the toxicity of the effluent.

f. Should the permittee conduct toxicity testing of the effluent prior to the compliance date listed in the schedule in Part I.C.2. below, the results of the test and the test report shall be reported with the DMR for the month following the receipt of the testing results. In no case shall this exceed 45 days from the completion of the test or the report submission date below, whichever may occur first.

2. Reporting Schedule

The permittee shall monitor during the specified period; shall report the results on the DMR; and shall supply one copy of the toxicity test report specified in this Whole Effluent Toxicity Program in accordance with the following schedule:

Period	Sampling Period	DMR/Report Submission Dates
Annual 1	January 1, 2015 – December 31, 2015	January 10, 2016
Annual 2	January 1, 2016 – December 31, 2016	January 10, 2017
Annual 3	January 1, 2017 – December 31, 2017	January 10, 2018
Annual 4	January 1, 2018 – December 31, 2018	January 10, 2019

D. Other Requirements and Special Conditions

1. 95% Capacity Reopener
   A written notice and a plan of action for ensuring continued compliance with the terms of this permit shall be submitted to the DEQ-Northern Regional Office (DEQ-NRO) when the monthly average flow influent to the sewage treatment plant reaches 95% of the design capacity authorized in this permit for each month of any three consecutive month period. The written notice shall be submitted within 30 days and the plan of action shall be received at the DEQ-NRO no later than 90 days from the third consecutive month for which the flow reached 95% of the design capacity. The plan shall include the necessary steps and a prompt schedule of implementation for controlling any current or reasonably anticipated problem resulting from high influent flows. Failure to submit an adequate plan in a timely manner shall be deemed a violation of this permit.

2. Indirect Dischargers
   An Industrial User Survey is required by this permit one year from the effective date of the permit. Additionally, the permittee shall provide adequate notice to the Department of the following:

   a. Any new introduction of pollutants into the treatment works from an indirect discharger which would be subject to Section 301 or 306 of Clean Water Act and the State Water Control Law if it were directly discharging those pollutants; and

   b. Any substantial change in the volume or character of pollutants being introduced into the treatment works by a source introducing pollutants into the treatment works at the time of issuance of this permit.

   Adequate notice shall include information on (i) the quality and quantity of effluent introduced into the treatment works, and (ii) any anticipated impact of the change on the quantity or quality of effluent to be discharged from the treatment works.

3. Operation and Maintenance (O&M) Manual Requirement
   The permittee shall maintain a current Operations and Maintenance (O&M) Manual for the treatment works that is in accordance with Virginia Pollutant Discharge Elimination System Regulations (9VAC25-31) and the Sewage Collection and Treatment Regulations (9VAC25-790).

   The O&M Manual and subsequent revisions shall include the manual effective date and meet Part II.K.2 and Part II.K.4 Signatory Requirements of the permit. Any changes in the practices and procedures followed by the permittee shall be documented in the O&M Manual within 90 days of the effective date of the changes. The permittee shall operate the treatment works in accordance with the O&M Manual and shall make the O&M Manual available to Department personnel for review during facility inspections. Within 30 days of a request by DEQ, the current O&M Manual shall be submitted to the DEQ-NRO for review and approval.

   The O&M Manual shall detail the practices and procedures that will be followed to ensure compliance with the requirements of this permit. This manual shall include, but not necessarily be limited to, the following items as appropriate:

   a. Permitted outfall locations and techniques to be employed in the collection, preservation, and analysis of effluent and sludge samples;

   b. Procedures for measuring and recording the duration and volume of treated wastewater discharged;

   c. Discussion of Best Management Practices, if applicable;

d. Procedures for handling, storing, and disposing of all wastes, fluids and pollutants that will prevent these materials from reaching state waters. List type and quantity of wastes, fluids and pollutants (e.g. chemicals) stored at this facility;

e. Discussion of treatment works design, treatment works operation, routine preventative maintenance of units within the treatment works, critical spare parts inventory, and record keeping;

f. Plan for the management and/or disposal of waste solids and residues;

g. Hours of operation and staffing requirements for the plant to ensure effective operation of the treatment works and maintain permit compliance;

h. List of facility, local and state emergency contacts; and

i. Procedures for reporting and responding to any spills/overflows/ treatment works upsets.

4. CTC and CTO Requirement
In accordance with *Sewage Collection and Treatment* regulation (9VAC25-790), the permittee shall obtain a Certificate to Construct (CTC) and a Certificate to Operate (CTO) from the Department of Environmental Quality prior to constructing wastewater treatment works and operating the treatment works, respectively. Non-compliance with the CTC or CTO shall be deemed a violation of the permit.

5. Licensed Operator Requirement
The permittee shall employ or contract at least one Class I licensed wastewater works operator for this facility. The license shall be issued in accordance with Title 54.1 of the Code of Virginia and the regulations of the Board for Waterworks and Wastewater Works Operators. The permittee shall notify the Department in writing whenever he is not complying, or has grounds for anticipating he will not comply with this requirement. The notification shall include a statement of reasons and a prompt schedule for achieving compliance.

6. Reliability Class
The permitted treatment works shall meet Reliability Class I.

7. Sludge Reopener
The Board may promptly modify or revoke and reissue this permit if any applicable standard for sewage sludge use or disposal promulgated under Section 405(d) of the Clean Water Act is more stringent than any requirements for sludge use or disposal in this permit, or controls a pollutant or practice not limited in this permit.

8. Sludge Use and Disposal
The permittee shall conduct all sewage sludge use or disposal activities in accordance with the Sludge Management Plan (SMP) approved with the issuance of this permit. Any proposed changes in the sewage sludge use or disposal practices or procedures followed by the permittee shall be documented and submitted for DEQ-NRO approval 90 days prior to the effective date of the changes. Upon approval, the revised SMP becomes an enforceable part of the permit. The permit may be modified or alternatively revoked and reissued to incorporate limitations or conditions necessitated by substantive changes in sewage sludge use or disposal practices.

9. E3/E4
The annual average concentration limitations for Total Nitrogen and/or Total Phosphorus are suspended during any calendar year in which the facility is considered by DEQ to be a participant in the Virginia Environmental Excellence Program in good standing at either the Exemplary Environmental Enterprise (E3)

level or the Extraordinary Environmental Enterprise (E4) level, provided that the following conditions have also been met:

a. The facility has applied for (or renewed) participation, been accepted, maintained a record of sustained compliance and submitted an annual report according to the program guidelines;
b. The facility has demonstrated that they have in place a fully implemented environmental management system (EMS) with an alternative compliance method that includes operation of installed nutrient removal technologies to achieve the annual average concentration limitations; and
c. The E3/E4 designation from DEQ and implementation of the EMS has been in effect for the full calendar year.

The annual average concentration limitations for Total Nitrogen and/or Total Phosphorus, as applicable, are not suspended in any calendar year following a year in which the facility failed to achieve the annual average concentration limitations as required by b. above.

10. Nutrient Reopener

This permit may be modified or, alternatively, revoked and reissued:

a. If any approved wasteload allocation procedure, pursuant to Section 303(d) of the Clean Water Act, imposes wasteload allocations, limits or conditions on the facility that are not consistent with the permit requirements;

b. To incorporate technology-based effluent concentration limitations for nutrients in conjunction with the installation of nutrient control technology, whether by new construction, expansion or upgrade, or

c. To incorporate alternative nutrient limitations and/or monitoring requirements, should:
   i. the State Water Control Board adopt new nutrient standards for the water body receiving the discharge, including the Chesapeake Bay or its tributaries, or
   ii. a future water quality regulation or statute require new or alternative nutrient control.

11. PCB Monitoring

The permittee shall monitor the effluent at Outfall 001 for Polychlorinated Biphenyls (PCBs). DEQ will use these data for the implementation of the TMDL for the Tidal Portions of the Potomac and Anacostia Rivers in the District of Columbia, Maryland, and Virginia approved by EPA on October 31, 2007.

The permittee shall conduct the sampling and analysis in accordance with the requirements specified below. At a minimum:

a. Monitoring and analysis shall be conducted in accordance with the most current version of EPA Method 1668 or other equivalent methods capable of providing low-detection level, congener specific results. Any equivalent method shall be submitted to DEQ-NRO for review and approval prior to sampling and analysis. It is the responsibility of the permittee to ensure that proper QA/QC protocols are followed during the sample gathering and analytical procedures.

b. The permittee shall collect one wet weather sample and one dry weather sample within one year of the date of this permit reissuance.

   The wet weather sample shall be defined by the permittee based on the permittee's decision criteria for their facility. The wet weather decision criteria shall be submitted to DEQ-NRO for review and approval prior to any PCB sampling. The permittee shall maintain documentation to demonstrate that wet weather flows achieve these criteria. The documentation shall be available to DEQ-NRO upon request.

A dry weather sample is defined as that taken at Outfall 001 following at least a 72 hour period with no measurable rainfall and influent levels at normal base flows.

c. Each effluent sample shall consist of a minimum two liter volume and be collected using either 24-hour manual or automated compositing methods. The sampling protocol shall be submitted to DEQ-NRO for review and approval prior to the sample collection.

d. The data shall be submitted to DEQ-NRO by the 10th day of the month following receipt of the results. The permittee shall have the option of submitting the results electronically. The submittal shall include the unadjusted and appropriately qualified individual PCB congener analytical results. Additionally, laboratory and field QA/QC documentation and results shall be reported. Total PCBs are to be computed as the summation of the reported, quantified congeners.

If the results of this monitoring indicate actual or potential exceedences of the water quality criterion or actual exceedences of the Waste Load Allocation specified in the proposed TMDL, the permittee shall submit for review and approval a Pollutant Minimization Plan (PMP), as discussed in Part I.D.12 of this permit, that is designed to locate and reduce sources of PCBs in the collection system upon notification by DEQ-NRO. A component of the plan may include an evaluation of the PCB congener distribution in the initial source intake water to determine the net contributions of PCBs introduced to the treatment works.

12. PCB Pollutant Minimization Plan

a. Pollutant Minimization Plan
Upon notification from DEQ-NRO that the PCB monitoring results for the effluent indicate a reasonable potential to exceed the water quality criterion or an actual exceedance of the Wasteload Allocation specified in the PCB TMDL for the Tidal Portions of the Potomac and Anacostia Rivers in the District of Columbia, Maryland, and Virginia (approved by EPA on October 31, 2007), the permittee shall submit to DEQ-NRO for review and approval a PMP designed to investigate the location and potential reduction of sources of PCBs in the collection system. The PMP shall be submitted within 180 days of the date of the notification letter.

The PMP shall detail the practices and procedures that will be followed to investigate the location and potential reduction of sources of PCBs. This PMP shall include, but not necessarily be limited to, the following items, as appropriate:

1) Provide a facility contact for the contents of the PMP and any activities associated with the PMP;
2) Provide a proposed implementation schedule for minimization activities and prospective milestones;
3) Propose actions for known or probable sources;
4) Propose actions to find and control unknown sources;
5) Summarize any previous minimization activities;
6) Present methods for measuring, demonstrating, and reporting progress;
    i) May include an evaluation of the total PCBs and/or PCB congener distribution in the initial source intake water to determine the net contributions of PCBs introduced to the treatment works.
    ii) May include raw influent testing using either grab or composite samples as well as sampling upstream in the collection system. Screening methods may be utilized to target specific areas of interest.
    iii) Alternative PCB test methods are acceptable provided analytical sensitivity is sufficient for detection and quantification.

iv) May perform further monitoring of the final effluent to determine effectiveness of the reduction efforts and to reestablish a new baseline for PCBs in the final effluent.

7) Estimate the PCB load reduction provided by treatment; and
8) Provide information on continuing assessment of progress, which may include establishment of criteria to evaluate whether the location and potential reduction of PCB sources has been addressed, and whether a more routine follow-up awareness, education, and inspection approach is appropriate.

b. Pollutant Minimization Plan Annual Report

If the permittee is required to implement a PMP in accordance with this special condition, an Annual Report shall be submitted to DEQ-NRO for review and approval by February 10th for the previous year's PMP activities.

The Annual Report shall:

1) Summarize PMP Achievement for investigating the location and potential reduction of sources of PCBs in the collection system during the past calendar year;
2) Address any revisions needed for the PMP for the coming year;
3) Address material and process modifications, if applicable;
4) Summarize measures taken to address known, probable and potential sources; and
5) Discuss incremental and cumulative changes from the baseline loading.

13. Mixing Zone Study

The permittee may conduct an updated site specific mixing zone study for the receiving waters to determine wasteload allocations for toxic pollutants once the CERLA Habitat Enhanced Cap installation is completion and may request that the permit be modified to reflect the results of the study.

14. Total Maximum Daily Load (TMDL) Reopener

This permit shall be modified or alternatively revoked and reissued if any approved wasteload allocation procedure, pursuant to Section 303(d) of the Clean Water Act, imposes wasteload allocations, limits or conditions on the facility that are not consistent with the permit requirements.